OCTOBER 1950

FIREMEN

FIFTY-FIFTH YEAR · NATIONAL FIRE PROTECTION ASSOCIATION

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Observe Fire Prevention Week • October 8-14

can your present equipment prevent tragic loss of life and property?

IT CAN, if your town is one of the thousands equipped with John Bean High-Pressure Fog Fire Fighters.

Here's why: *This amazing apparatus carries its own water supply and allows firemen to go into action immediately without wasting time laying hose.*

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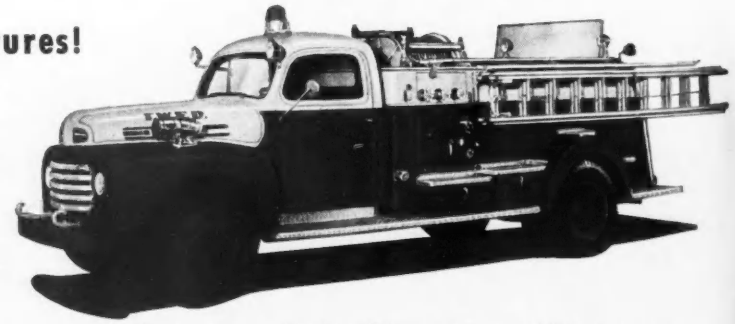

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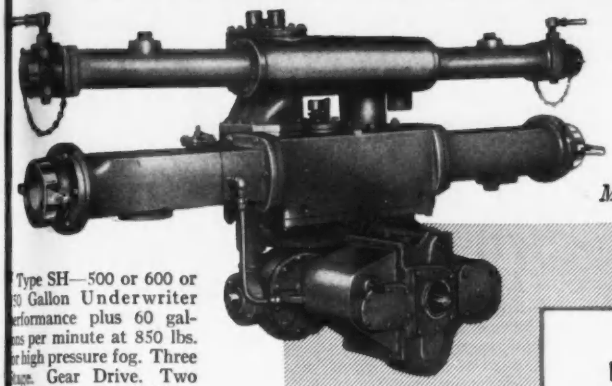

Type SH—500 or 600 or 750 Gallon Underwriter performance plus 60 gallons per minute at 850 lbs. for high pressure fog. Three Stage. Gear Drive. Two suction inlets, 4", 4½" or 5". Two 2½" discharge valves (3 on 750 Pump).

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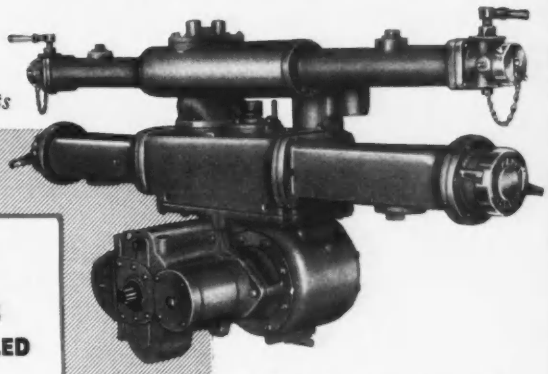

★ Type S—Capacities 500-600-750 gallons per minute at 120 lbs. pressure. Two Stage. Gear Drive. Two suction inlets, 4", 4½" or 5". Two 2½" discharge valves. (3 on 750 Pumps).

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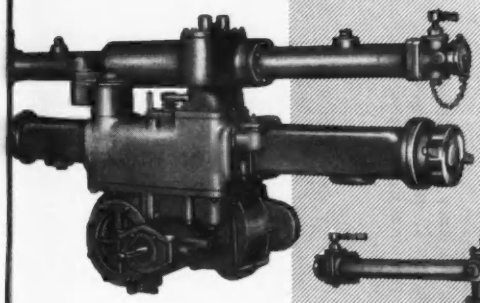
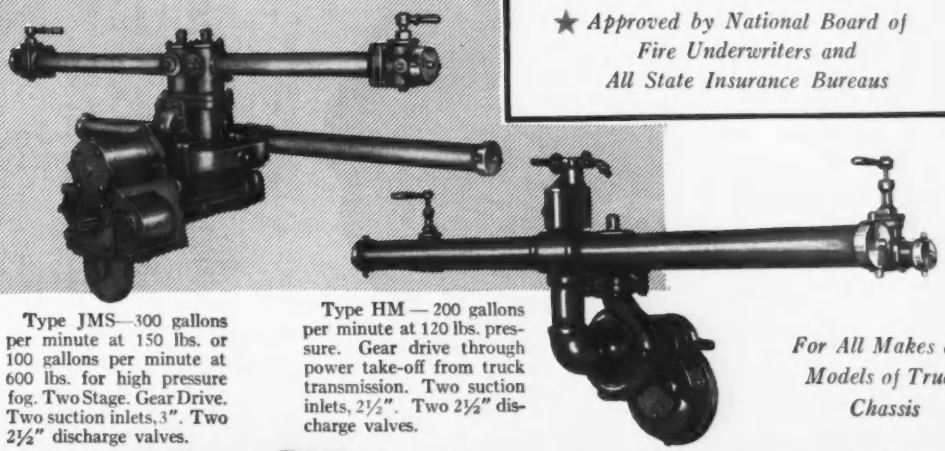


★ Type M — Capacities 400-500 gallons at 120 lbs. Gear Drive. Two suction inlets, 3½" or 4". Two 2½" discharge valves.



Type JMS—300 gallons per minute at 150 lbs. or 100 gallons per minute at 600 lbs. for high pressure fog. Two Stage. Gear Drive. Two suction inlets, 3". Two 2½" discharge valves.

Type HM — 200 gallons per minute at 120 lbs. pressure. Gear drive through power take-off from truck transmission. Two suction inlets, 2½". Two 2½" discharge valves.

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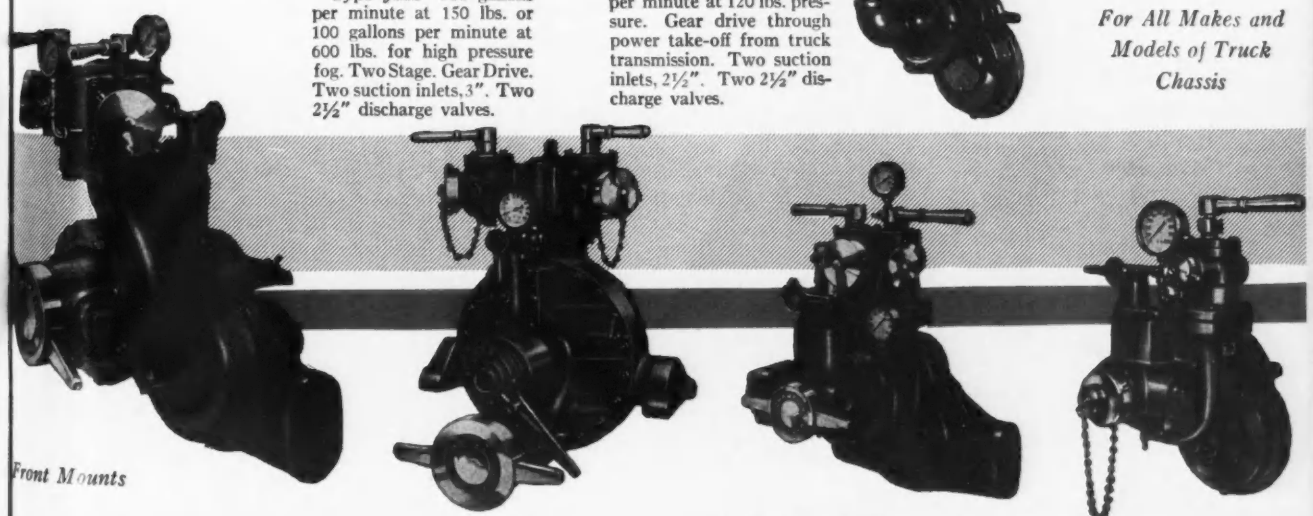

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Type KF—Capacities 400-500-600 gallons at 120 lbs. Gear Drive. 3½", 4", 4½" suction. Two 2½" discharge valves.

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Type H—100 gallons per minute at 500 lbs. pressure. Gear Drive. 2½" suction inlet. 1½" discharge valve.

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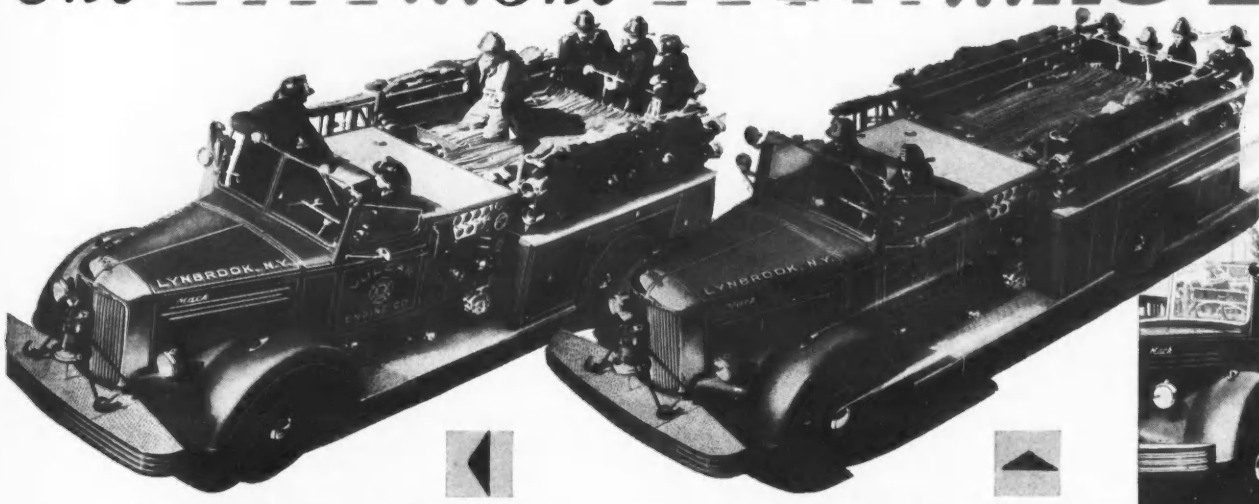

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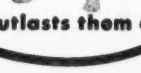

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Firemen

Volume 17 Number 10

WARREN Y. KIMBALL — EDITOR
PAUL R. LYONS — ASSOCIATE EDITOR
HENRY S. GERE — ADVERTISING MANAGER

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PERCY BUGBEE — GENERAL MANAGER
ROBERT S. MOULTON — TECHNICAL SECRETARY
HORATIO BOND — CHIEF ENGINEER
CHARLES S. MORGAN — ASSISTANT TO GENERAL MANAGER

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Cover Photo

The Taos Volunteer Fire Department of New Mexico (member department of NFPA), houses its apparatus in the adobe fire station shown on this month's cover. While this type of structure is peculiar to New Mexico, nevertheless it is also an illustration of simple and expedient design.

The walls of this building are 24 inches thick and there are a meeting room, a storage room, bath and kitchenette, and restrooms. Expansion of the building soon will add a 30 x 45 ft. truck room, which will necessitate the removal of beautiful blue spruce trees in front of the station. However, members of the department can easily replace these by transplanting others from the nearby mountains. When the renovation takes place the department intends to rent the upstairs apartment to increase their revenue.

Additional information on the Taos department and another view of this station are contained on page 10 of this issue of FIREMEN.

Tempting Fate by Procrastination

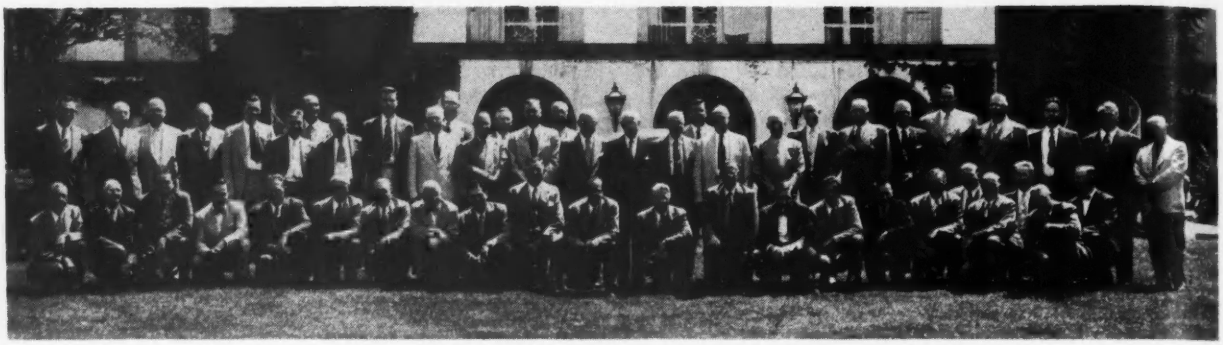
Just a year ago under the heading "Small Mains — Big Fires" we reported an actual situation at an eastern university where local water department officials tried to stop a fire school class in pump operation because there was not water enough in the hydrants near the university to provide a single hose stream for instructional purposes without reducing pressure on the system to an ineffectual point. Apparently, the hydrants around this university are chiefly there for their ornamental or esthetic value because they could scarcely supply water enough for even a tiny fire let alone provide the required "fire flow" for a great university which involves not only large buildings but the lives of hundreds of students.

The location referred to is the University of Delaware at Newark, Delaware. Apparently, officials at this center of learning are not much concerned with fire safety if they continue to tolerate such a condition. A state fire school was held at the university again this year. Nationally known fire instructors came long distances and gave of their time to demonstate the latest fire training techniques. Again the class in fire department operation was up against the same "impossible" water situation. The instructors wisely used soft suction hose so as to avoid "pulling a vacuum" on the weak water system and their instruction included proper use of the pumper gages to avoid overtaxing a weak system. Nevertheless, they were threatened by arrest for even deigning to connect a fire department pumper to a hydrant at the university. Certainly, the year that has passed since the previous fire school has been sufficient time to make at least emergency corrections of this vital deficiency in water supply for fire protection at the University of Delaware. Information is not at hand to indicate whether the University is self-insured, but it seems unlikely that any reliable fire insurance organization would want to carry insurance on a property with such a woefully inadequate water supply.

This situation presents a challenge to the fire service of the State of Delaware to demand adequate protection for the University before some fire tragedy makes the headlines. After the publication of the FIREMEN magazine editorial last year the situation was called to the attention of the authorities that conducted the state fire school. Apparently, they were not in position to get correction. Not only was the water supply at the school deficient but there was no basic hose and ladder equipment available for training purposes. One Delaware fire department did loan some cast off equipment including old *painted* ladders of doubtful condition but not even a shut-off nozzle was provided for the out-of-state chiefs that came to the university to conduct modern firemanship training.

Firemen in other states have been successful in getting generous appropriations from legislature to conduct fire training schools, Alabama, California, Connecticut, Florida, Maryland, Oklahoma, and Pennsylvania, to name but a few. After all, most fire fighters are volunteers and even the paid fire fighters donate their services for much of the training work. The least that a state can do is to finance adequate training facilities. Beautiful apparatus may win parade prizes, but only properly trained fire fighters can reduce the heavy toll of lives and property lost to fire.

Fire Departments! Remember to send your reports of Fire Prevention Week activities to Melvin R. Freeman, Public Relations Manager, National Fire Protection Association, 60 Batterymarch Street, Boston, Mass.



This group of fire officials met at The Greenbrier, White Sulphur Springs, W. Va., August 28-29 to discuss civil fire defense. Present also were members of the NFPA Committee on Civil Fire Defense. Back row, left to right: David B. Soule (Me.), Major Gen. Merritt A. Edson (Vt.), Jos. A. P. Flynn (Me.), Chief A. H. Koltonski (Vt.), John J. Meyers (Md.), Benj. R. Benson, III (Md.), John E. Hurley (Ark.), Chief L. M. Steele (Greenbrier F. D.), C. S. Mullen, Jr. (Va.), Eli Dahlin (Kans.), E. C. Iverson (Neb.), Clyde Latchem (Kans.), Zack T. Cook (Iowa), J. Mark Boone, Jr. (N. C.), P. R. Wilson (W. Va.), Col. E. S. Stayer (Del.), M. O. Allen (Tenn.), T. S. Duke (Nat'l Automatic Sprinkler & Fire Control Assn.), E. A. Faircloth (Fla.), J. E. Larson (Fla.), C. A. Raper (W. Va.), Zack Cravey (Ga.), F. P. Reinero (Ga.), Hugh W. Stewart (La.), Wm. H. Kirchem (La.), Otto C. Dahl (Ill.), Geo. F. Wahl (Factory Mutual Engineering Div.), Bill Armstrong (Ala.), Chas. E. Clark (Pa.). Front Row: C. W. Cornell (Iowa), Chas. S. Vawter (Okla.), C. R. Cobb (W. Va.), Chas. S. Morgan (NFPA), W. B. Salyers (Ky.), W. M. Dening (Ky.), Leonard C. Lund (Minn.) Chairman, John A. Neale, (Nat'l Board of Fire Underwriters), Martin S. Hurst (Ontario), H. M. Welcher (N.B.F.U.), Kyle P. Laughlin (U. S. Dept. of Defense), J. E. Frederickson (General Motors Corp.), Arnold C. Renner (Mich.), Chas. R. Scott (Ohio), J. F. Barksdale (Miss.), W. F. Traeger (Pa.), Homer Edgeworth (Miss.), L. L. Priar (Pa.), E. J. Kehoe (U. S. Atomic Energy Commission), P. B. Lantz (W. Va.), Joe R. Yockers (Calif.), Horatio Bond (NFPA).

Fire Marshals Meet on Civil Defense

STATE Fire Marshals, and state fire defense authorities met Monday and Tuesday, August 28–29, at the Greenbrier Hotel, White Sulphur Springs, West Virginia, to confer on their civil defense responsibilities. The conference was called by the Civil Defense Committee of the NFPA Fire Marshals' Section of which Leonard C. Lund, Deputy Fire Marshal of Minnesota, is Chairman. The meeting was for the purpose of laying a foundation for appropriate action by the states on U. S. official civil defense plans.

Twenty-five states and the Canadian Province of Ontario were represented at the meeting. The first meeting of the NFPA Committee on Civil Fire Defense was also held.

While no formal set of papers was presented, important contributions to the discussion were made. Edward J. Kehoe of the New York office of the U. S. Atomic Energy Commission discussed radiological hazards and the fire fighter. Kyle P. Laughlin, Consultant to the Assistant for Civil Defense Liaison of the U. S. Dept. of Defense, discussed the factors of fire storms and conflagrations in atomic and incendiary bomb attacks. John A. Neale, Chief Engineer of the National Board of Fire Underwriters, presented the problem of public water supplies and emergency auxiliary supplies. Horatio Bond, Chief Engineer of the National Fire Protection Association, introduced the subject of first aid fire fighting and fire guard schemes. Joe Yockers, Fire Marshal of California, introduced the general subject of fire department coordination with a description of the California State Fire Disaster Plan, and each of the other fire marshals present described the status of civil defense activities by the State Fire Marshal's Office in their respective states. Effective fire department coordination schemes were reported by representatives from Louisiana, Michigan, North Carolina, Ohio, Pennsylvania and Ontario, and recent progress in Oregon was read from a report especially made for the meeting by E. A. Taylor, Deputy Fire Marshal of Oregon. State Fire Marshal C. A. Raper of West Virginia welcomed the fire marshals to his state, and Lloyd M. Steele, Chief of the Fire Department of the Greenbriar Estates, expressed the pleasure of having the meeting at his establishment.

Significant points brought out in the discussion, among others, were the following:

1. Fire fighters are not likely to be hampered by radiation hazards as much as is generally expected. For example, it would usually be possible to immediately enter to fight fires in an area devastated by an A-bomb from an air burst such as that at Hiroshima. Suitable monitoring devices are being developed but it probably will not be necessary for fire departments to do the monitoring themselves.

2. Cities must define those areas in which fire storms and conflagrations due to A-bombs or other attacks may be expected. Fire storms have been observed where the proportion of plan area of buildings to open space is 20 per cent or more and where there is an area built up to that extent extending over a square mile or more. In fire-storm areas, persons in bomb-proof shelters may be killed by heat or carbon dioxide or carbon monoxide.

3. Public water supplies may be expected to be put out of service by the large number of service connections likely to be broken or loss of power for waterworks pumps. Measures for isolating breaks promptly in public water systems should be established by the water utilities. Fire departments must undertake to provide for water supplies for fire fighting other than those provided by the water utilities. Examples of such auxiliary water supplies are ramps to ponds, streams and other bodies of water, dry hydrant connections, street tanks and other ground storage reservoirs.

4. U. S. and Canadian fire departments already have more equipment and manpower than is being considered necessary in England for civil defense fire department operations. Additional manpower and equipment may not be necessary. There are large reserves of fire fighting equipment in suburban and rural areas which not only can be mobilized around target cities, but which have some equipment especially useful such as water tank trucks. For civil defense an orderly scheme for the mobilization

(Continued on page 20)

Nebraska's Rural Fire Protection Pays

HAROLD I. REQUARTTE, Secretary of the Farmers Mutual Insurance Company of Nebraska and a member of the NFPA Committee on Farm Fire Protection reports a reduction of rural fire losses amounting to 32 percent since his company began a program of inspecting for rural fire hazards in 1944 and of assisting in the financing of rural fire trucks in 1946.

The loss cost of carrying $100 of farm fire insurance has been reduced $.02877 which on the volume in force represented a saving for the company of $83,334 for the year 1948. A 2 cent credit on the 15 cent per $100 insurance rate has been passed along to policy holders in counties which are reasonably well protected by rural fire trucks. This is a 13.2 percent reduction. It is believed that a continued favorable experience will make further reductions possible.

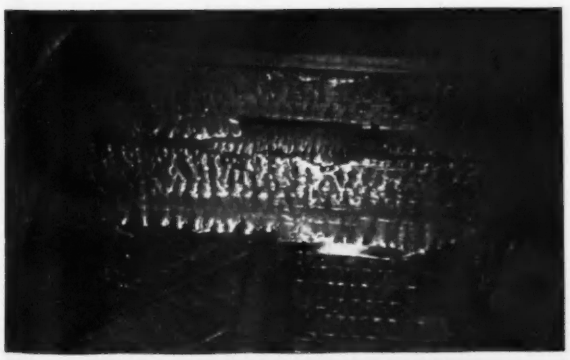
The insurance company has financed more than 150 rural fire trucks under a law which permits insurance companies to loan money to towns for this purpose, utilizing up to 20 percent of the company's surplus. The money is loaned at an interest rate of 1 percent and has proved to be a sound investment. Each new fire company is given $100 for organizational expense by the Farmers Mutual, plus a contribution for each run depending upon the work accomplished. Especially good performance is rewarded by gifts of items such as a 15 pound CO_2 extinguisher or foam equipment. Fire districts can operate without any investment on their part and many of the trucks are already paid for.

The insurance company has specifications for rural fire trucks which call for a 300 gallon water tank and at least a 200 gpm pump although a 500 gpm pump is recommended where finances permit. The value of these small units with limited pump and tank capacity at serious farm fires is proven by the photographs of typical fires shown on this page. Of course, such results could not have been obtained without the excellent assistance of the Nebraska State Fire Training Program under Chief Joseph I. Fetters, member of the NFPA Committee on Firemen Training and of the Joint Committee on Evolutions. Instruction in the use of the latest fog fire fighting and ventilation techniques, using 1½-in. lines from tank trucks, has played a major part in the success of this program.

The insurance company has furnished each fire company with large detailed maps showing roads, farms, water supplies and other pertinent information. One copy of the map is carried on the fire truck and another is mounted in the station.

Some 37 counties have been approved for the insurance rate reduction under the rural fire truck program. A rural truck must be within 10 miles of all principal areas of the county although individual properties may be at a greater distance.

The Neligh volunteer firemen made a 10 mile run and saved this 1½ story farm home with their tank equipment. Photo shows how flames had burned through floor and seriously involved attic.



The Schuyler volunteer fire department made a 4-mile run to the W. E. Sigler farm and knocked out this cellar fire, with two 1½-in. fog streams and 165 gallons of water. Flames had also spread up laundry chute to 2nd floor bathroom shown in top photo.

The Ponca volunteer department made an 8 mile run and saved the home of Owen McQuillan, ignited from an exposure fire.

ELECTRICITY AND THE FIREMAN

by Charles L. Smith

Electrical Field Engineer, National Fire Protection Association

THE electrical fire hazard falls into that phase of the fire department's work which is classed as fire prevention. It is unnecessary to discuss the value of fire prevention from an economic or a life-saving standpoint but of all fire prevention activities, there is probably no better illustration of beneficial results than in the case of electrical fire hazards.

Electrical accidents in particular are of importance to the fire chiefs and to members of the fire department because of the electrical hazards involved in fighting fires. There are many records of fatal accidents and serious shocks to firemen from the low potentials commonly used on building equipment. The fireman with wet hands and feet and possibly wet clothes makes an excellent conductor for even these low voltages.

Reinspection programs by fire prevention bureaus and electrical inspection authorities have been very effective in reducing fire losses due to electrical causes. As an example, the number of reported electrical fires in the City of Detroit, Michigan for 1947, numbered 354. This is to be compared against the average of better than 500 fires of electrical causes in previous years. Early in 1946 the Electrical Inspection Bureau of Detroit, in conjunction with the Fire Prevention Bureau of that city, started a reinspection program which we are quite sure contributed toward lowering the total number of fires directly accountable to electrical causes.

Electrical Fires Do Occur. The fire losses charged to electricity for the ten-year period of 1938 to 1948 averaged 10.61 per cent with a total property value of $138,098,000. Added to this $54,000,000 from losses of fires caused by lightning and the sum will run very close to $200,000,000 for a ten-year period. These totals are for reported fires where the cause is ascertainable and do not report either the total number of fires or the total property losses attributable to electrical causes.

Explosions and fires caused by electricity are commonly classified as originating from three sources of electricity — power circuits, static electricity and lightning.

Costly explosions and fires caused by static electricity occur quite frequently in grain elevators, oil refineries, munitions plants, paint factories, motion picture projection booths, hospital operating rooms, textile mills, printing establishments, gas-filled basements, and when petroleum products are discharged from tank cars or trucks. Also many aircraft disasters, such as crash landings and fires and explosions in the air, are attributed to static electricity.

Fire caused from power circuits or dynamic electricity is generally due to misuse of electrical systems. Dynamic electricity, that is, the electrical current of industry, is generated by rotating machinery or by chemical action. Alternating current and direct current dynamos generate electricity by virtue of the rotation of electrical conductors in a magnetic field. Storage batteries and dry cells produce electricity as a result of chemical action between similar substances. These methods of generating electrical energy are well understood and subject to precise control. We use this type of electrical energy to supply our lighting systems, or electrically motivated equipment such as refrigerators, radios and other household appliances as well as industrial equipment of all types.

Lightning, the most terrifying of frequent natural phenomena, is the result of vast accumulation of electric charges and their sudden discharge. Although the energy in lightning is small, the rate of energy dissipation is tremendous and the resulting pulse of current and accompanying mechanical force may produce unbelievable damage in the vicinity of the stroke. Protection against lightning includes lightning rods and gaps, properly installed grounding wires, bonding wires and lightning arrestors. (Consult N.F.P.A. standards on the subject.)

The use of electricity in past years has had a rapid growth. Various Rural Electrification Administration activities of the government in which millions of horse-power are being developed and made available to all areas throughout the country, have caused the use of electricity to increase in leaps and bounds. This great increase in the use of electrical current applies not alone to the cities and towns which are provided with fire protection, but is reaching out into the remotest type of rural community where little or no fire protection exists.

Electrical Codes. This makes necessary that a standard regulation govern the installation of electrical equipment and further if this standard is to be made effective it must be enforced.

So far as an electrical standard is concerned, there now exists the National Electrical Code, a published standard of the National Fire Protection Association, which is also adopted and published by the National Board of Fire Underwriters, approved by the American Standards Association, and which has been in effect for a period of over fifty years. The code is applied fairly uniformly in something over two thousand cities and towns in this country, and in addition, is made the law in many states.

Probably no fire prevention code has a higher degree of enforcement than that of the National Electrical Code. Originally the enforcement of State and Municipal Electrical Codes was almost exclusively under the jurisdiction of the fire marshal. But with the rapid growth in the use of electrical current, and owing to the fact that all building construction involves electrical wiring, much of this work has been placed under the jurisdiction of community

building departments and specialized electrical inspection authorities. However, there are still many localities where the fire chief or one of his subordinates, has charge of the inspection of electrical equipment and it is quite essential that fire chiefs and every member of fire departments be conversant with those hazards which are likely to cause electrical fires or accidents.

For years those interested in safe electrical installations have devoted time and money in the preparation of the National Electrical Code, but it is an installation code. Electrical inspectors realize that the National Electrical Code, even with the potent assistance of the "List of Inspected Electrical Materials" (published by the Underwriters' Laboratories, Inc.), cannot assure that the properly installed electrical system will continue to be reasonably safe, unless such systems are properly used and maintained.

For many years back the larger cities of this country experienced from two to three fires a week in moving-picture theaters. These fires occurred at a time when the apparatus was new and the regulation of equipment and operators was neglected. A strict code on the electrical equipment of moving-picture booths, the licensing of operators and a periodic reinspection have reduced the number of these fires until at the present time, one fire per year is looked upon as an unsatisfactory record. The economic saving which resulted from this effective regulation was enormous.

Radios. A few years back when radio was just beginning to find itself, there were fires of all sorts from radio equipment. Antennas fell down on live electric wires. They were struck by lightning. The equipment was defective. Storage batteries were unfused with a result that numerous fires occurred. Today, with millions of radio receiving sets, the number of fires has been very materially reduced.

Hazardous Locations. A field in which numerous fires occurred frequently with disastrous losses of both life and property, is that of a type of occupancy classed by the National Electrical Code as "Hazardous." I refer particularly to locations using flammable gases, gasolines and other explosive vapors, and to locations in which are contained or processed combustible or explosive quantities of dust. Also, in such areas as hospital operating rooms and delivery rooms where the ignition of anesthetics administered to the patients may occur. These conditions have been recognized and a definite effort made to correct them. As a result, there appeared in the National Electrical Code, a complete section governing the installation of electrical equipment in hazardous locations. This effort induced the electrical manufactures to produce an entirely different type of electrical apparatus suitable for use in these locations and it has been frequently said that it is now safer to use this new type of apparatus directly in the hazardous locations than to use the old apparatus in some isolated or protected room. The effect of the appearance of this regulation in the National Electrical Code together with a strict enforcement of the regulatory authorities, has greatly reduced the losses from electrical causes in this class of occupancy.

Static. The control of static electricity is of utmost importance particularly in those areas in which there is contained combustible or explosive vapors or dust. Control of industrial static takes various forms. However, all methods depend upon neutralizing or discharging the static electricity so that no spark is produced. This may be accomplished by providing means where the static charges are discharged harmlessly as fast as they are produced and can be readily accomplished by bonding all conducting objects together and connecting them to a common ground electrode.

Heating Devices. In residential property, electrical heating devices are the cause of a large number of electrical fires. This is quite naturally due to the fact that this particular class of electrical equipment depends for its utility on its ability to heat.

Flatirons. The flatiron was at one time the worst offender and the residence the location of most of the fires. In a certain large city, there were 3170 electrical fires in a five-year period. Of this number 330, or more than ten per cent were flatiron fires in the home. In the same period of time, there were 105 flatiron fires in mercantile establishments and these together with the 152 flatiron fires which were unclassified as to location, gives a total of 587 flatiron fires or about twenty per cent of the total fires. The total fires from all type of heating devices in this five-year period was 672.

What has been done and what can be done to reduce this loss? Encouragement in the use of the automatic flatiron has and will tend to greatly reduce the number of fires from electric flatirons. The automatic iron is provided with a thermostatic control switch which cuts off the current when the heat of the iron becomes excessive. Fire chiefs and fire department representatives should make this a feature of their Fire Prevention Week activities.

Motors. Another common cause of fires is the electric motor, and one of the worst offenders has been the small fractional horsepower motor such, for instance, as the type used in electric refrigerators, stokers, blowers, etc.

The National Electrical Code now requires that this type of motor must be provided with adequate protection which will cut off the current before the motor can start a fire. In the five-year period, previously referred to, there were 614 motor fires or about one-fifth of the total fires.

Flexible Cords. Another cause of electrical fires and one that needs the most careful consideration, is that of misuse of flexible cords. While the total number of cord fires for the five-year period referred to was much smaller than for heating devices or motors, this cause of fire is growing and it is one that can be controlled only by education of the public and by constant supervision.

There are a number of factors which enter into this extensive and growing use of cord. Most of the buildings wired a number of years ago are entirely unsuited to the present day use of electricity, and many of the buildings, which have been constructed in recent years, have insufficient capacity or insufficient outlets to take care of the present day needs. This has resulted in an unwarranted, and in many cases, dangerous use of flexible cord.

Flexible cord is recognized by the National Electrical Code only for pendant lamps and where flexible connections are necessary. It is not permitted for circuit wiring.

The improper use of flexible cords is bad enough, but to make matters even worse, millions of feet of cord have been made and used that have not been approved by the Underwriters' Laboratories, Inc.

This condition became so serious that several years ago the electrical inspection group started a campaign to at last rid the country of unapproved flexible

cords. One of the first obstacles encountered was the inability to determine in the field just what cord was standard and what was sub-standard.

Through the combined activities of Underwriters' Laboratories, Inc., and the cord manufacturers of flexible cords, a suitable form of marking was devised and today those cords which meet the specifications of the Laboratories, are equipped with ready means of identification of approval.

What was the result? Some ten years ago only 15 per cent of the flexible cord manufactured was labeled, 85 per cent being unlabeled and much of it unfit for use. It is stated that today this figure has been more than reversed and at lease 85 per cent of the cord manufactured is now labeled.

The task of eliminating this unwarranted use of flexible cord is only partly complete. Even with all the cord of an approved type, much of it is still being used in a manner which causes fires. Not only fires but shocks and often fatalities.

The value of publicity in this campaign is fully realized. The carrying of the message into the home of the electric-current-using public is expected to go a long way toward the reduction of this particular fire hazard.

Improper Fusing. Improper fusing is a cause of many electrical fires. The fuse has been frequently referred to as the safety valve of the electrical circuit. I have many times heard electrical inspectors of experience say they would rather have a defective electrical installation properly fused, than a standard installation improperly fused.

What Can the Fireman Do

A PAPER prepared and read by Mr. R. D. MacDaniel, Vice-President of the Grain Dealers Mutual Fire Insurance Company, and a Director of NFPA, before the 17th Annual Fire Department Instructors Conference, in Memphis, contained in part the following statements: "It will be readily conceded that firemen should make general inspections, but many persons (and certainly the average electrical inspector or engineer will) look askance at the idea of a relatively non-technical person having the temerity to inspect such a technical thing as an installation of electrical equipment." Mr. MacDaniel further stated; "that certainly a man who is not thoroughly familiar with the theories and practices of electrical engineering, should not go beyond a superficial examination of electrical equipment; but there is a great deal of electrical inspection work that can be done by conscientious firemen, who should recognize his limitations and not hesitate to acknowledge them, but he could prevent 50 per cent of the electrical fires that otherwise occur in the properties he visits. At least 50 per cent of electrical fires are due to conditions easily recognized by anyone with a fair understanding of electrical fire hazards, plus a little knowledge of basic causes of fires."

I recommend to all of you that you obtain a copy of Mr. MacDaniels' paper, entitled "Electrical Inspections by Firemen," which is available from the National Fire Protection Association office at 60 Batterymarch Street, Boston, Massachusetts. The price of the pamphlet is 10 cents.

I also recommend a booklet entitled "The Firemen and Electrical Equipment — A Guide to Self-Protection," Bulletin Number 280, as prepared by the Office of Vocational Education and published by the University of Michigan Press, Ann Arbor, Michigan. The latter booklet should be a part of every fireman's library because of its reference to safety.

Common Potential Hazards and Suggestions

Circuit Breakers and Fuses. One of the first things a fireman should do when making an inspection of the electrical system, is to examine fuse boxes and distribution panels to determine if the proper size of fuses or circuit breakers are being used to protect the various circuits. This becomes difficult when the size of conductors for special circuits are not known and the type of load served by such circuits cannot be determined readily. However, most circuits for lighting purposes are usually 15 amperes. All approved fuses have the current rating marked plainly visible without removing the fuse, circuit breakers are similarly marked. If there are indications that fuses have been repeatedly blowing and if the fuse holder and current-carrying parts of the fuse holder, or the fuse itself shows marked discoloration, which is the result of heating, you may be sure that there is something wrong with the circuit.

Circuit breakers which are blocked in or wired around indicates similar faults. And of course, if pennies are found behind fuses and for that matter anything which is used to replace the proper over-current device is a pretty fair indication of over-loaded circuits. Nearly everyone knows that the fuse or circuit breaker plays an important role in the electrical system, it is the safety valve which warns of trouble.

Defect Contacts. While examining the fuse panels and the circuit breaker panels, the firemen should note the condition of such equipment, as to the maintenance and housekeeping of such equipment. Badly corroded or burnt contacts, fuse holders and other current-carrying parts should be reported. Accumulation of dirt, dust and combustible material within such enclosures may start a fire. Such electrical equipment should not be closely adjacent to readily combustible material.

Poor Maintenance. The firemen should report all frayed or poorly insulated conductors which includes extension cords. Boxes and enclosure covers should be in place and tightly closed. Conductors, raceways and non-current carrying equipment should be mechanically secure; by that I mean, in place properly supported.

Amateur Wiring. It is not too difficult to detect amateur wiring, which is the cause of a large number of fires charged to electricity. It is a well known fact that in nearly every case, fires caused by poor wiring is because of carelessness or improper wiring, installed by untrained persons.

Cords. Portable extension cords and portable appliance cords should be closely inspected to determine if the cord is one of an approved make, listed by a recognized testing laboratory, such as the Underwriters' Laboratories, Inc., who require that all such approved cords be labeled with a bracelet label every few feet. Any cord that shows signs of wear, exposed parts, frayed installation and badly deteriorated insulation should be reported and disconnected from the circuit.

Poor Housekeeping. Accumulation of dirt, dust, lint, etc., on motors, junction boxes, raceways, and other parts of the electrical wiring system also, is a potential hazard. The flow of electricity through conductors creates heat. If this heat is dissipated and is not allowed to reach a temperature higher than that for which the equipment is approved,

(*Continued on page 18*)

Dayton Fire Department Opens New Training School and Drill Tower

by Chief Joseph A. Kirby

Demonstrating pull-up raise of two pole extension ladders.

General view of drill tower looking northwest.

A NEW, six-story fire training school and drill tower was opened by the Dayton Fire Department recently. The building has been designed to meet the demands of utility and appearance and to provide facilities for drill and the development of new fire training evolutions.

Built of concrete and brick masonry, the structure includes a modern and fully equipped fire-fighters' classroom, a utility room for indoor training, a class and assembly room, a smoke room for gas mask training, an office, and a shower room.

Four different types of windows will present a variety of problems of entrance, egress, and rescue work that the fire-fighter would encounter in a dwelling or an industrial building. Sprinkler systems and stand pipes have also been incorporated to acquaint the men in training with their proper operation.

The Dayton Fire Department is headed by Chief Joseph A. Kirby, who advised architect Harry I. Schenck in the planning of the new training facilities.

Assistant Chief Forrest B. Lucas of Dayton is a member of the Joint Committee on Evolutions that prepared the recent publication "Handling Hose."

Opening-day ceremonies featured a demonstration of fire fighting and life saving techniques utilized by the members of the department. The mayor of Dayton, city officials, members of the Dayton Safety Council of the Chamber of Commerce, and fire chiefs and assistant chiefs of other Ohio cities were present to witness the opening of the new school.

(Below) Equipment room.

(Below) Interior of classroom.

Hartford County Mutual Fire Insurance Company Gives Awards to Connecticut Volunteer Companies

CASH awards totaling $5000 were made recently to sixteen volunteer companies in Connecticut for fire prevention work in their respective communities. The prizes, ranging from $100 to $1000 came from a fund established by the Hartford County Mutual Fire Insurance Company as a tribute to the work of the volunteer companies in that state.

The committee that weighed the merits of the competitors included State Fire Marshal Edward J. Hickey, chairman, and Chief Henry G. Thomas of Hartford, and Chief Thomas H. Shipman of New London, Jesse Meeker, Stanley J. Summer, and John DeK. Alsop.

Contesting fire departments were classified in groups according to size and type of organization. The following cash awards were made: Group I, West Avon Volunteer Fire Department $800, Blue Hills Volunteer Fire Department of Bloomfield $800, North Canton Volunteer Fire Association $500, and Lisbon Fire Department $200.

Group II, Mortlake Fire Company, Brooklyn $1000, Windham Center Fire Department $700, Thomaston Fire Department $300, and Orange Volunteer Fire Association, Deep River Fire Department, Nicholas Fire Department, Hotchkiss Hose Company 1 of Derby, and Noank Fire Company $100 each.

Group III, Collins Company of Collinsville $300 and South End Fire Department of Old Lyme $200.

Group IV, Montville Fire Company 1 $300 and Winsted Fire Department $200.

The application and registration form used to classify the competing companies allowed a thorough appraisal of the qualities of each including information on the type of area served, its population, personnel listings, means of support and financing, and a detailed listing of apparatus, equipment, and the alarm systems and fire prevention activities.

Another fund totaling $5000 has been established and awards will be made next year in a similar competition.

Fire Protection Demonstration in Dover, Delaware

FIRE Prevention Week in Dover, Delaware, was launched recently by the demonstration shown on this page. Purpose of the occasion, according to Former Chief Thomas E. Baker, was to emphasize the improvement in the city's water supply for fire protection through the installation of some new mains.

Altogether, 3,000 feet of new 10-inch asbestos-cement main was installed. An additional 300 feet of 6-in. main was laid to eliminate a 4-in. dead end, and ten new 6-in. hydrants were located along the route of the new main.

The city now can boast of two hydrants on every corner of the business district. One intersection has three hydrants within a 150-foot area and another has three hydrants within 200 feet. This allows a quick hook-up in the event of bad fires and helps to eliminate long hose lines.

In the picture here, actually nine 2½-in. streams were used. Two were used to feed a ladder pipe with a 1½-in. tip and two more were used to feed a deluge gun with a 1⅜-in. tip. The other five lines were as follows: three had 1-in. tips, one had a ⅞-in. tip, and one a ¾-in. tip. The total delivery was 2506 gpm and the residual on a Crosby gauge showed that about another 1,000 gallons was available. Before the installation of the new mains the supply had been only 670 gpm.

Two 600 gpm pumpers and one 750 gpm pumper delivered the water for the demonstration, which was directed by Chief Ralph H. Boyer and First Assistant Chief Samuel F. Heite.

Last year the Dover firemen won the first place certificate for effectiveness of its observance of Fire Prevention Week in competition with volunteer fire companies of the state of Delaware.

Pennsylvania Plans New Fire School

THE General State Authority of Pennsylvania in cooperation with the Department of Public Instruction has approved a project for a new fire training building at Lewistown.

Preliminary plans call for a square structure divided into three parts, one section similar to a mercantile establishment, another similar to a manufacturing plant and the third section similar to a private dwelling. The plans thus include many of the suggestions for state fire school facilities recommended in NFPA FIREMEN magazine in its November 1945 issue.

The "factory" part will be four stories in height with a five-story smoke tower built in. The dwelling unit will adjoin the factory and will have the peaked roof like those found on many Pennsylvania homes, while the mercantile unit will have the traditional revolving door, a tempered plate glass window and other features found in the design of many stores in the state.

The structure will be fire resistant throughout, except for special replaceable panels of combustible materials which will be placed in various walls and floors. For example, a panel will be provided in the store wing so that the firemen in training can learn how to cut their way to a stubborn basement fire and extinguish it.

Fire doors will connect the various units of the building so that fires can be set in one section or in all parts of the building at once. The smokeproof tower built into the manufacturing unit will be so constructed that it can also be used as a training tower. This will allow the training firemen to have practice in getting hose lines through buildings and over building cornices to a roof.

Inside the mercantile unit will be counters similar to those in stores, a stairway, a glass block wall, and an elevator shaft. The factory unit will have ovens, tanks, and similar fire hazards, while the dwelling unit will be similar to the average household.

While the new building is designed for the training of firemen in groups of 30, it will also be available to civilian defense personnel for training in fighting fires caused by bombs, in evacuation from burning structures, and in similar rescue work.

The administration building at the new school will be fitted as a typical firehouse with the necessary equipment. It will also have space for school officials and a lecture room.

The fire school is operated by the Public Service, headed by Alfred S. Holt, in cooperation with the Firemen's Association of Pennsylvania, the Pennsylvania State College, and the Lewistown Fire Department. Edgar A. Spotz, Fire Training Advisor, for the Public Service Institute, directs the fire school and is a member of the NFPA Committee on Firemen Training.

It is directed by an advisory committee consisting of Charles E. Clark, executive secretary of the Firemen's Association, Capt. William F. Traeger, fire marshal, of the Pennsylvania State Police, Hugh G. Pyle of the Pennsylvania State College, Michael E. Clark, chief of the Williamsport fire department, Frank Deen, assistant chief of the Lancaster fire department, John A. Moran, chief of the Johnstown fire department, Peter C. Ostergard, past president of the Firemen's Association, Lawrence P. Scully, chief of the Erie fire department, L. Ellis Wagner, chief of the York fire department, and Chief A. Nelson Yearick, of Lewistown.

Night Club Fire Proves Worth of Regulations Restricting Use of Flammable Decorations

(Above) The flameproof draperies and the vinyl plastic materials used on the bar stools did not burn despite the considerable heat that had developed before the fire fighters arrived.

Chief Edward N. Montgomery tore open the covering on this booth bench. Not only had the covering remained intact but it will also be noted that the padding was in excellent condition despite the intense heat, and showed no evidence of burning, which is unusual for cotton linters.

Following the Coconut Grove tragedy in Boston in November of 1942 regulations regarding the use of flammable decorations in places of public gathering were established. These regulations have evoked criticism in certain quarters on the ground that they were needlessly severe.

Deputy Chief Edward N. Montgomery of the Fire Prevention Division of the Boston Fire Department (member NFPA) persistently resisted pressure to weaken these regulations. His persistence was vindicated by a fire in Boston's Copa Club at 2:30 A.M. on June 11.

As shown in the above photos the fire was well advanced before discovery due to the combustible construction, but the fire retardant seat coverings and flameproofed draperies resisted the flames.

Chief Montgomery stated in a letter regarding this fire: "Shortly after the fire I received a telephone call from the company adjuster. He expressed the opinion that had the material not been flameproof, a much more serious fire would have resulted. . . . Believe me, it is a matter of great satisfaction to those of us who were damned and double damned while trying to prevent another *Coconut Grove.*"

Los Angeles County Contracts for New Fire Stations

ADDITIONAL fire protection for citizens of Los Angeles County was promised recently with the announcement by Spence D. Turner, Chief Engineer, Los Angeles County Fire Department (member NFPA) that the George W. Carter Company would construct a number of new fire stations in unincorporated areas outside of the Los Angeles City limits.

The unique feature of the plan is that both the financing and construction will be handled by the Carter Company, contractors and developers. The county has arranged for ten-year leases on each of the new fire stations. At the conclusion of the lease period, the county will automatically obtain title to the stations without any additional outlay of cash.

Chief Turner points out that this method of finance makes possible the badly needed stations at least five years before enough tax money could have been accumulated for them and they will be paid for as they are used. It also will mean a possible reduction of fire insurance costs in the areas where protection is being improved. Two of the new stations have already been started in the El Monte area and a third is underway near El Segundo Boulevard. Other stations will be underway and some of them in service by the end of 1950.

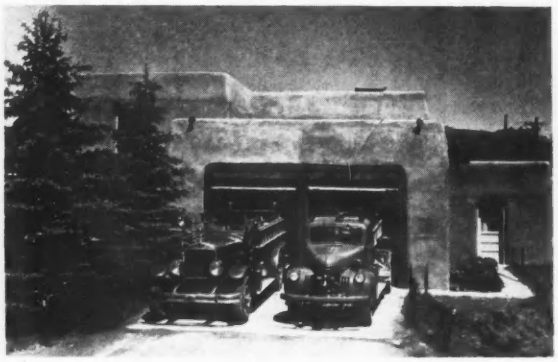
Each fire station will be one story in height and will contain an apparatus room, work room, sleeping quarters, kitchen, dining area and recreation room. They will be of frame stuccoed construction with redwood siding and brick planting boxes dressing up the front elevations.

Incidentally, the Los Angeles County Fire Department is one of the largest paid fire departments in the State of California with more than 500 paid fire fighters. Chief Turner is also County Fire Warden and commands a large division of forest fire fighters.

"Believe It or Not"

A 500 gpm pumper at draft discharging through two lines of 3-inch hose can deliver 500 gpm further (1200 ft.) than a 750 gpm pumper can deliver the same quantity of water using two lines of 2½-inch hose (1000 ft.). The 500 gpm pumper gives this flow at 150 lbs. and the 750 gpm pumper gives this flow at a little above 200 lbs. pressure. However, the much higher friction loss in the 2½-inch hose more than offsets the additional pumper performance.

Fire Department Activities



Taos Volunteer Fire Department, Inc.

(*See Cover and page 5*)

THE Taos Volunteer Fire Department, organized back in October 1934, protects the town of Taos, population 3,000 and the county which is 65 miles long and 40 miles wide with 15,000 population. Thirteen of the original members are still active. Widows of deceased members are made honorary members for life. The 25 fire fighters are headed by President Jack K. Boyer, Chief Sam Beimer, and Assistant Chief Mich Compernolle.

The fire department owns its own equipment valued at $80,000 and a $25,000 fire station. It participates in the state fire insurance fund, has an annual contribution drive and New Year's dance, but still hopes to get financial support from the city and county. The department participates in two Fiestas held annually in Taos and usually manages to have a float win a parade prize.

There are two fire companies and a five-man police squad housed in the adobe fire station which has 24-in. walls, apparatus room, meeting room, recreation room downstairs and a three-room apartment above. There is a regular well equipped first aid squad of 10 men but all members have first aid training every two years and there are two fire company drills monthly. The department has a softball team in the city league and usually a basket ball team.

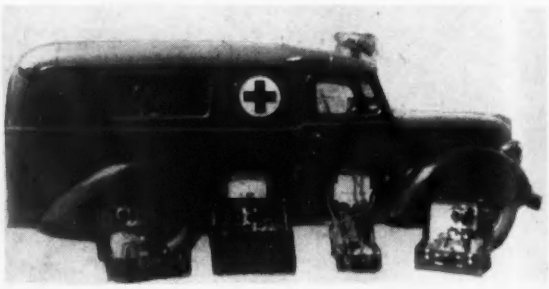
Apparatus consists of a 500 gpm American LaFrance pumper with 1500 ft. 2½-in. hose and a Darley 400 gpm combination with 1900 ft. 1½-in. hose. A new 500 gpm pumper with both high and low pressure characteristics is to be purchased.

Edmonton Fire Department, Alberta, Canada

Many fatal or other serious injuries to firemen are due to the sudden strain of maximum physical effort after periods of relative inactivity. After the death of a fire fighter of the Edmonton Fire Department due to a heart attack at a smoky fire, the Department appointed a Director of Physical Training to head a continuous "physical fitness" program.

This program as organized also incorporated the department's first aid and rescue service, including the use of gas masks, inhalators, etc. It also includes various organized sports such as baseball, tennis, and hockey, and the less popular, but essential, calisthenics, formation drills, and other aids to better physical fitness and teamwork.

The calisthenics follow the pattern of the Swedish drill, and each member is given a turn at handling the class to promote interest. The variety of sports allows members to select those in which they are most interested and enthusiastic. Since there is a wide gap in the ages of the members, each man is allowed to "pace" himself in the training, but conditioning is considered of foremost importance.



Pictured above is the ambulance, "Chemox" breathing apparatus, dual air hose mask and dual inhalator, which is part of the equipment of the Edmonton Fire Department.

Funds for equipment are raised and disbursed by a central sports committee chosen from members who are interested in the program. The city supplies the grounds for recreation and the members supply the sports equipment.

First aid courses allow the men to take at least one examination a year as the St. John's Association (Red Cross) does not recognize a first aid certificate after five years.

New Training Tower of Pasadena Fire Department

This new tower at Pasadena is equipped with a gas chamber for gas mask and rescue operations, in addition to hose and ladder facilities. Sprinkler system and cellar nozzle operations are also performed with water in the smoke room. The tower has been in operation since March 1, 1950.

New Volunteer Fire Company Publishes Lively Bulletin

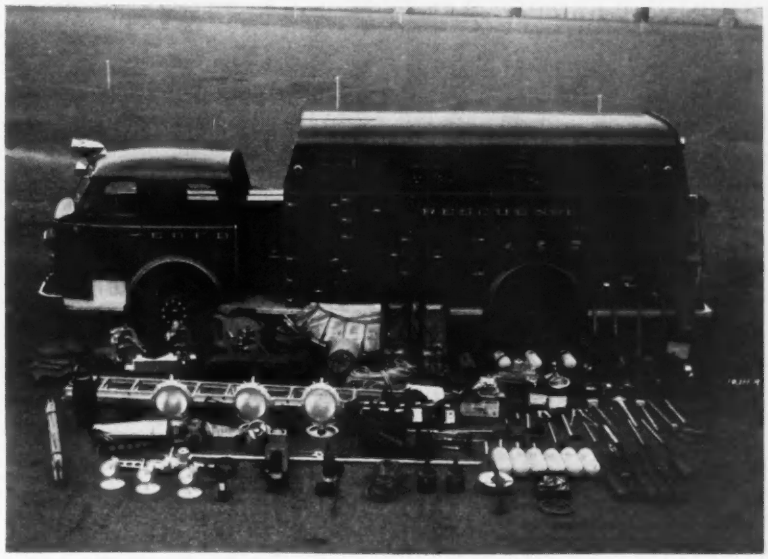
CHIEF Engineer George C. Hawley, of the Texas Fire Insurance Division, calls attention to an interesting fire department publication issued by Chief Willie V. Sims of Malakoff, Texas. This is a new fire department which started to build its station in August. The "Malakoff Fire Fighter" has a number of items of interest such as the following:

"FIRE! FIRE! FIRE! If some one had turned in the alarm last Wednesday when the fire first started, we are sure that we could have extinguished the fire at Tom Dawson's home without having to report a complete loss. Yea, the alarm was sounded, but not until the Fire Chief, who happened to be in that part of town, saw the fire and turned it in. By that time the fire was going too big to save the building, but we did save the 'LOT' as someone said, and two other buildings nearby. The Fire Chief thanks all the firemen, who really did a swell job, under the conditions as they existed. Good words came from others concerning the department, but on the other hand there were some who can never have a good word for anything good in the community, but we cannot let this discourage us.

"FIRE HAZARDS. The members of the fire department can look around and see many fire hazards. There are still some to be moved, but we hope that these will be moved soon. The people are watching us very closely, and is they see fire hazards around our own places, they are not going to care very much about moving theirs."

Volunteer Fire Department Publishes Map

THE volunteer fire department of Silver Spring, Maryland, has published a large map and street directory of the portion of suburban Montgomery County immediately north of the District of Columbia served by the company. The map which is 25 x 38 in. in size sells for 50c a copy. It is estimated that at least 75,000 persons live in the area covered by this map. The total population of the County in the 1950 census was 163,000. The Silver Spring volunteer fire department has two stations and is believed to serve one of the largest unincorporated communities in the United States.



East Orange, New Jersey, Rescue Truck

PHOTOS on this page show a rescue truck built by the American La-France Foamite Corporation for the East Orange Fire Department, headed by Chief Charles A. McGinley.

This unit went into service during April and its calls have averaged three times those for any other company in the city. The City of East Orange is a congested community with 70,000 people in an area of two miles square.

The truck carries over two hundred pieces of equipment in twenty-four compartments for rescue, first-aid, and salvage operations, and features an inter-communication system between the driver's cab and the sedan body, three-way radio communication from both front and rear compartments, and two walkie-talkie units.

Power and lighting equipment include two 2500 watt Homelite generators, 110 volt D.C., two 230 volt 180 cycle hi-output generators, six 500 watt floodlights with 800 ft. of floodlight cable, a Homelite smoke ejector, an 80 pound pavement breaker, and an electric chain saw.

There are also six Scott air-packs with extra face pieces, bottles, and 75 ft. of extension hose, and six M.S.A. masks with spare cannisters.

"Opening-up" equipment features a 10-in. Skil-saw, an electric hack saw, three sets of hole saws, and a ½-in. electric drill.

(Newark Evening News Photo)

A feature of the East Orange rescue truck is the detachable three-piece tripod boom which can be used for lifting a street-car or truck and a 7¼-ton Gar-Wood winch with 500 ft. of steel cable.

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Membership Report

Membership in the NFPA Fire Company Section costs $12.50 per year. This includes 10 subscriptions to FIREMEN. Additional fire fighters may be enrolled to receive FIREMEN at $1.25 each. Other NFPA members will be sent FIREMEN on request.

NFPA Welcomes:

The following members to the Fire Department Section who place the total membership at 1,351 companies and 20,681 men. States and departments represented this month are as follows:

Arizona:
Gila Bend Volunteer Fire Department, Gila Bend.

California:
Buena Park Fire Department, Buena Park
California Institution for Men Fire department, Chino
Patton State Hospital Fire Department, Patton
Pacific Colony State Hospital, Spadra

Iowa:
Independence State Hospital Fire Department, Independence

Kansas:
Concordia Fire Department, Concordia
Pratt Fire Department, Pratt

Michigan:
Escanaba Fire Department, Escanaba
Schoolcraft Fire Department, Schoolcraft

Minnesota:
Rice Lake Township Organized Fire Fighters, Duluth

New York:
King Ferry Fire Department, King Ferry

Ohio:
Verona Fire Department, Verona

Pennsylvania:
Keystone Hook and Ladder Company No. 1, Myerstown
Slippery Rock Township Volunteer Fire Department, New Castle
Springdale Volunteer Fire Department, Springdale

Texas:
Kountze Volunteer Fire Department, Kountze
River Oaks Volunteer Fire Department, River Oaks

Virginia:
Big Stone Gap Volunteer Fire Department, Big Stone Gap

●

Corrections!

Two editorial errors have been detected in the September issue of FIREMEN. With apologies here are the corrections. On pages 15 and 27 in the article entitled "Do You Know How to Buy Fire Apparatus" the price for the 1950 Specifications for Automobile Fire Apparatus was quoted as 75 cents and $1.00. The correct price for these specifications is *75 cents.*

On page 9 in the article entitled "Small Volunteer Department Wins National Recognition in Fire Prevention" the town of Atlantic, Iowa, was stated to have placed second in Iowa. Atlantic placed second in the nation, first in the state of Iowa and received a special commendation for the book that summarized their activities.

How to join NFPA

Application blank available from NFPA Executive Office, 60 Batterymarch Street, Boston 10, Massachusetts, U.S.A., or from any member of NFPA Membership Committee.

Fire Department Section (Annual dues $12.50)

Membership in the Fire Department Section of NFPA which provides special services is open to
(1) Any fire department (or fire company) paid or volunteer.
(2) A volunteer fire fighting organization in any community.
(3) A private industrial fire brigade.
(Annual dues $12.50)

Membership in the Fire Company Section of NFPA provides:

Member companies receive ten copies of FIREMEN magazine each month, mailed to the homes of individual firemen if desired. Beyond the ten, additional copies of FIREMEN cost $1.25 per year.

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A handsome certificate of NFPA membership suitable for framing.

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A drop-brim style with seamless crown. Applied ribs have steel reinforcement. A tough, long-wearing leather hemet at lower cost.

No. 700 — STREAMLINER

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A feather-weight helmet with specially formed crown giving solid support to the front piece. The drop brim gives extra protection for eyes, ears and back of neck.

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A utility model of CAIRNS Flint-Flex plastic. Safe and durable, with close-fitting front piece and new "snap-in" lining which makes installation or removal of the complete lining assembly a matter of seconds.

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NFPA announces the following publications now available for distribution:

NFPA No. 58— Standards for the Storage and Handling of Liquefied Petroleum Gases.

This complete revision of earlier standards was adopted by the National Fire Protection Association in 1950 upon recommendation of the Committee on Gases. This edition supersedes all prior editions published by the NFPA in the National Fire Codes, by the National Board of Fire Underwriters, or elsewhere. **50 pages. Thirty-five cents.**

NFPA No. 81 — Standards for Fur Storage.

This pamphlet supersedes the edition of 1947 and was adopted by the NFPA at the 1949 annual meeting. It recommends standards for vaults for fur storage, the operation of vaults, construction of buildings that handle, process, and store furs, describes building hazards and operation, and recommends the types of protection suitable for this type of building. **12 pages. Twenty-five cents.**

Making a Good Job of It— "Effective Use of Spray or Fog."

This reprint of the article published in the July issue of *FIREMEN* magazine summarizes the effective practices to be followed in "fog" application. **4 pages. Ten cents.**

NFPA No. 49— A Table of Common Hazardous Chemicals.

Prepared by the Committee on Hazardous Chemicals and Explosives, in cooperation with the American Chemical Society, this table is the most authoritative information available to date. The purpose of listing the substances is not to discourage their proper uses, but rather to make available information relative to their hazardous properties and fire-fighting phases in order to promote and improve methods of fire protection and prevention. **32 pages. Fifty cents.**

NFPA No. 33— Standards for Spray Finishing Using Flammable Materials.

These standards cover the application of combustible paint, varnish, lacquer, stain and similar finishing materials when applied as a spray in continuous or intermittent process. They outline practical minimum requirements to obtain reasonable safety under average contemplated conditions. **24 pages. Twenty-five cents.**

NFPA No. 77— Static Electricity.

This 1950 publication supersedes the last edition reprinted by the NFPA in 1948, and includes revisions adopted at the 1950 annual meeting. These revisions were made by the Committee on Static Electricity in order to make its recommendations consistent with the Committee on Flammable Liquids. **52 pages. Fifty cents.**

NFPA No. 78— Code for Protection Against Lightning.

This code supersedes the edition of 1947. It was prepared by the Committee on Protection Against Lightning, a committee sponsored jointly by the NFPA, the National Bureau of Standards and the American Institute of Electrical Engineers. **48 pages. Fifty cents.**

NFPA No. 30-LT— 1950 Tentative Suggested Ordinance for the Storage, Handling and Use of Flammable Liquids.

This suggested ordinance has been tentatively adopted by the NFPA, with final adoption scheduled for May 1951. Many changes in detail have been made as a result of suggestions received following publication of the 1949 draft. **52 pages. Fifty cents.**

THIS BOOT MAY SAVE YOUR LIFE!

U. S. ROYAL FIREFIGHTER BOOTS

- Extra reinforced ladder shank
- Wide skirted top pulls on or off, FAST
- Extra supple rubber rolls down comfortably
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- Boot lining and insole of soft, warm felt
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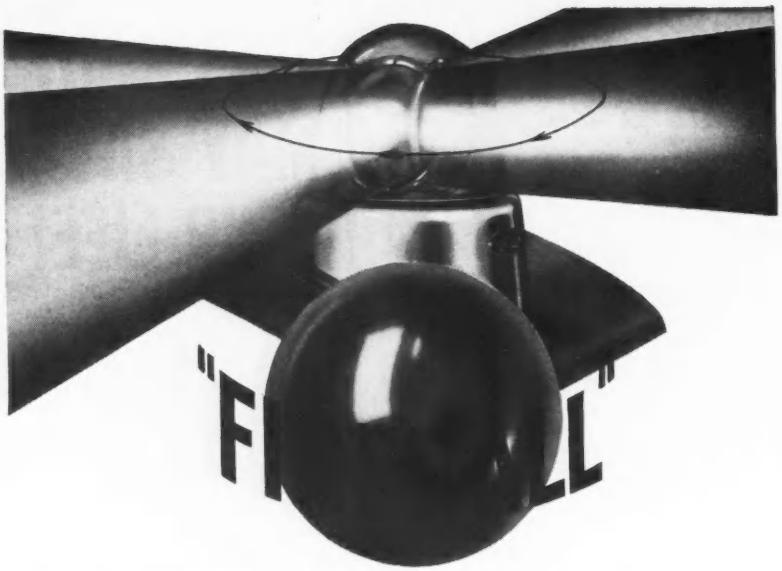
100% waterproof coats of sturdy black rubber with warm, maroon napped lining. Roomy, 2-piece body, raglan shoulders; fly front with instant snap and dee fasteners; roomy outside patch pockets. No stitching in main body; seams cemented, outside gum-strapped. Fully vulcanized after making.

US ROYAL FOOTWEAR

UNITED STATES RUBBER COMPANY

Rockefeller Center, New York



All over the country people are calling the Federal Beacon-Ray Light the FIREBALL. And, fireball it is in its unmistakable rotating warning motion. The spectacular action of the 180° spaced beams rotating through 360° gives — for the first time — complete *all-around* protection. Motorists and pedestrians are alerted at far greater distances than ever before — and from every angle. Call it "Beacon-Ray" or call it "Fireball" — mount it with regular flush roof mounting or on the special pipe mounting — either way (and by any name!) it will give you more protection than any other warning light. Write today for Beacon-Ray (FIREBALL) Bulletin.

Specify Federal Beacon-Ray warning light on all new apparatus

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Anti-Slip plus Featherweight

For Wear Over Leather Shoes

On in a jiffy — exceptionally light in weight. Note the razor-fine slits in the soles — they cling and stick on chancy footing, even when wet. This is the patented Top-Sider ANTI-SLIP sole famous with sailors. Soft, pliant rubber legs strap high over shoes and trousers. Roll and stow in your car.

Men's Whole Sizes 5 to 12
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Electricity and the Fireman

(*Continued from page 10*)

the installation is a reasonably safe one. However, should the heat be confined in enclosures because of blankets of dust, lint, or dirt, it may be understood, that dangerous temperatures will result.

Arcs and Sparks. Badly arcing and sparking switches should be replaced to prevent particles of hot metal from igniting adjacent combustible materials which often happens. Electrical wiring systems in such locations as dry cleaning plants (which use flammable liquids in its process), hospital operating rooms, paint manufacturing areas, gasoline and inflammable liquid bulk stations, paint spray locations, process plants, dispensary pumps and similar locations, grain elevators, flour mills, oil refineries, munition plants, textile mills, motion picture projection booths, and many other similar locations where flammable liquids, gases, dusts, lint and shavings are in a hazardous quantity, should be wired with electrical wiring systems in accordance with Chapter 5 of the National Electrical Code. The proper installation is best determined by a competent electrical inspector, engineer, contractor or wireman.

Emergency Light Systems. In many communities the fireman inspector may be charged with the duties of periodic inspection of automatic and manually operated emergency lighting systems, particularly when the emergency lighting system provides emergency power for exit lighting and other egress emergency lighting. It is important that such systems be periodically examined and tested to assure that the system is in good working order.

THE foregoing are a few of the important factors relative to inspection by firemen of electrical systems. Obviously, the fireman is not expected to take things apart; or is he going to make use of testing apparatus, nor is it necessary that he do so.

Non-technical superficial inspection of electrical equipment done by intelligent firemen, compounding careful observation with a reasonable amount of ordinary fire prevention knowledge, and carried to conscientious conclucion can be productive of tremendous beneficial results.

It is true, that the great majority of modern installations are originally made in the best possible manner in accord-

ance with approved standards or with the current type of equipment; but after the job is installed, almost anything can happen and it usually does. There may be a change of environment from the time of the original installation, processes not thought of introduced, thereby increasing motor or lighting loads or maintenance is inadequate or neglected or conductors are badly overloaded, introducing potential hazards, even in the best of wiring systems.

It is now recognized that until proper maintenance, good housekeeping, and proper use is the rule rather than the exception, electrical fires will increase rather than decrease.

It is suggested that where in communities there is an electrical inspection authority, that the fireman inspector refer to such authority reports of defects noted as to electrical systems in all type of occupancies. It would then become the duty of the electrical inspection authority to order such defects removed and to follow up by later inspection to assure enforcement of such orders or cause such defective wiring to be disconnected from its source of supply.

If there are no electrical inspection authorities, the administration of fire departments should be invested with authority to order such defective wiring to be repaired or disconnected from the source of supply.

Cooperation between various fire prevention, safety departments and public health services, should be encouraged in order that the public may be saved from death and destruction, which is the result of fires.

Electricity is a wonderful servant. It is a giant genie, which will go about its job, performing the many tasks in home and industry without fuss and harmful effects, if it is properly used and maintained. It is mankind's greatest servant and it is gross injustice to falsely charge it with misbehavior, when carelessness and neglect are the real culprits.

Reference Material

List of Inspected Electrical Equipment; Underwriters' Laboratories, Inc., 207 E. Ohio, Chicago 11, Illinois.

Fires and Fire Losses Classified, 1948; reprinted from NFPA Quarterly, National Fire Protection Association, 60 Batterymarch Street, Boston 10, Massachusetts.

The Fireman and Electrical Equipment; University of Michigan Press, Ann Arbor, Michigan.

Electrical Inspections by Fireman; National Fire Protection Association.

Friend of the Firefighter!

MIDWESTERN
PROTECTIVE CLOTHING

The Original Mackinaw Striped Safety Coat

Reduces Accidents - Saves Lives

Several years ago, Midwestern developed the *original* striped safety coat. The highly visible stripes are moulded to and vulcanized as part of the material. Thousands of Midwestern Safety Coats are serving fire departments throughout the world. Service records prove these garments not only offer high safety visibility, but have the qualities required to withstand the rough usage required in your hazardous work of protecting life and property against fire.

All Midwestern Safety Coats have the moulded-in yellow stripes which are a part of the garment and not painted or sewed on. The *original* Midwestern Safety Coat will give you trouble-free protection and dependable service.

PROTECTION - COMFORT - SERVICE

Largely through superior quality, design, fabric texture and advanced features, Midwestern is a leader in the field of firemen's clothing.

For full information on our complete line, see your Midwestern dealer. A letter to the factory will also bring you material samples for your inspection.

MIDWESTERN MFG. CO., Mackinaw, Illinois
Manufacturers of the Famous **MACKINAW Coats**

STOP WASTING HOSE!!

FIRE HOSE IS EXPENDABLE . . . AND EXPENSIVE

Don't gamble your $1.60 hose against damage from mildew and rot when, for a nominal investment in a CIRCUL-AIR you can dry it QUICKLY, SURELY, SAFELY and EASILY.

CIRCUL-AIR is the patented, electrically operated HOSE DRYER which circulates pre-warmed fresh air through coiled wet hose at the rate of 5 to 6 air changes per minute. It was designed to lengthen hose life; improve the appearance and functional design of new fire houses; and to save floor space and hard work. **NO OTHER METHOD is so fast — so easy to use — so economical. Dries Hose in a Few Hours. No Radiant Heat — Can't injure Hose. Dries Fire Clothing, too. Is Ideal for Hose Storage. Keeps All Hose Ready for Service.**

THESE TOWNS AND . . . 1000 OTHERS PROTECT THEIR HOSE WITH CIRCUL-AIR

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CIRCUL-AIR
THE AIR CONDITIONING FIRE HOSE DRYER

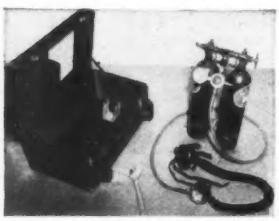
Protect Your Citizens with Better-Equipped Rescue Squads

Scott Demand Inhalator

THE new Scott *Demand* Inhalator provides efficient portable oxygen equipment for emergency use, *at low cost.* Offering "demand" flow of oxygen, plus constant flow if needed, the Scott *Demand* Inhalator can be used independently or as supplemental equipment in resuscitation, freeing resuscitators for use elsewhere.

The Scott *Demand* Inhalator is simply designed, easy to use. No adjustments of any kind are needed; department personnel does not require special training to use this new Scott product.

TYPE "A" Scott Demand Inhalator — portable, or for fixed installation in truck or ambulance (without cylinder) **$88.50**



TYPE "B" Scott Demand Inhalator including carrying case (without cylinder) **$147.50**

Here are the Outstanding Features of the New Scott DEMAND Inhalator.

SIMPLE. The Scott *Demand* Inhalator is easy to use — requires no special training. No adjustments are necessary — just a quarter turn of the cylinder valve and the Inhalator is ready to restore shock, immersion and heart-ailment victims.

EFFICIENT. With the Scott Inhalator oxygen is provided in ample quantity as "demanded" by the victim, conserving precious oxygen supplies. Constant flow also available when needed, "at the touch of a button."

LOW COST. In any one of several models the Scott *Demand* Inhalator is available at a cost well below that of other equipment of comparable scope. Investigate this new low-cost oxygen unit *now!*

Made by the manufacturers of famous Scott Air-Pak Safety Breathing Equipment.

Ask your distributor for FREE DEMONSTRATION, or write us today!

ESTABLISHED IN 1932 — Scott — FOR SAFETY—FOR SERVICE

MEDICAL DIVISION

SCOTT AVIATION CORPORATION

236 ERIE STREET, LANCASTER, N. Y.

CANADA: SAFETY SUPPLY CO. BRANCHES IN ALL PRINCIPAL CITIES
EXPORT: SOUTHERN OXYGEN CO., 157 Chamber St., New York 7, N.Y.

Fire Marshals Meet on Civil Defense

(*Continued from page 6*)

and move-up of existing fire companies is needed.

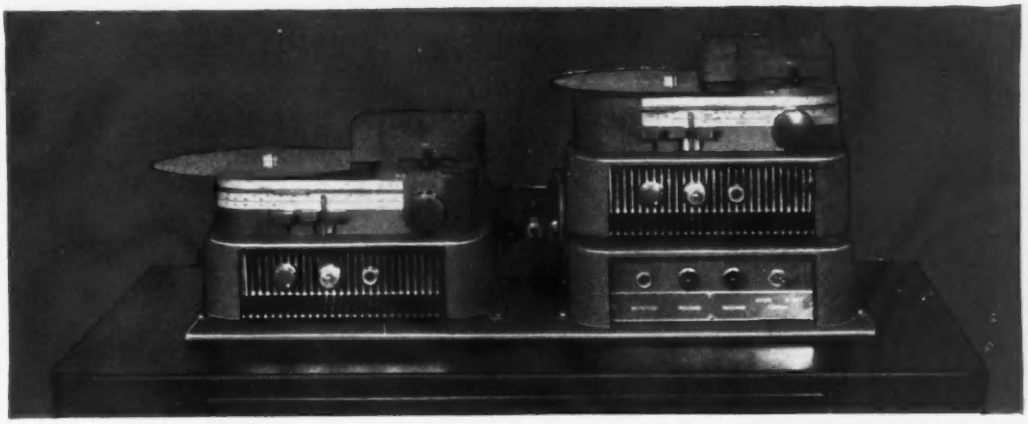
5. A state fire headquarters is needed to provide certain staff services for fire departments (training, standardization, administration, finance, public relations, liason) and to see that industrial facilities are provided for communications, special apparatus, feeding, clothing and housing, control of explosives and flammables, emergency water supply and fire prevention.

6. The limitation of fire departments is indicated by the fact that at Hamburg, Germany, 133 miles of street frontage was burning at one time. No fire department could expect to cope with such wartime situations. Even if present fire departments had their equipment and manpower doubled, tripled, or multiplied twenty times, the facilities would still be inadequate. At Hachioji, Japan, eighty percent of the city was destroyed in spite of mobilization of 55 pumper companies per square mile at the time of an incendiary attack. The problem will be to distribute fire companies so that serious loss will not occur to the fire department facilities of an area.

7. The expected damage of an A-bomb attack will consist of total destruction in about a mile circle, heavy damage (over 50 percent) in a two-mile circle, with damage of a partial nature the least of which will be broken glass in a circle 16 miles in diameter. In the areas of partial damage an extremely large number of fires can be expected due to overturned stoves, spilled flammable liquids, broken electric and gas services and other ordinary fire causes. As the number of such fires will be very great it will be necessary to depend on first aid fire fighting for dealing with most of these fires. The organization of a scheme for fire guards, fire guard training and direction will be important and worth undertaking in potential target cities. It will be necessary to provide simple fire fighting equipment, pump tank extinguishers, buckets of water and small tanks of static water for these first aid fire fighting operations. Study of the British Fire Guard Schemes by cities undertaking such programs will indicate many ways in which they can be made most effective.

Announcing

GAMEWELL *RECORDALARM*



RECORDS

Telephoned alarms and other voice communications.

MINIMIZES

Possibility of error inherent in voice communications.

PROTECTS

Fire and Police Departments against unwarranted charges of error or neglect of duty.

RECORDALARM RECORDER-REPRODUCER

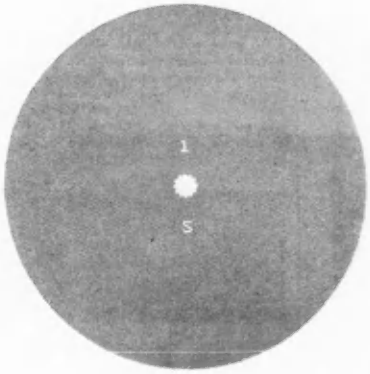
Provides

Records of messages from wire line, radio receiver, or monitoring equipment.

Continuous recording — for unattended periods of one hour.

Simultaneous recording and reproduction.

Automatic shift from one recording unit to the other with minimum time overlap of five (5) seconds.



RECORDING DISC
8½" diameter

The permanent flexible plastic discs may be played back as often as necessary.

Other Features:

High fidelity voice recording.

Instant location and "Play back" of any part of a record without interfering with reception.

Constant groove speed assures uniform recording quality.

Price on Application

THE GAMEWELL COMPANY

Newton Upper Falls 64, Mass.

IN CANADA: NORTHERN ELECTRIC CO., LTD. BELLEVILLE, ONTARIO

You know how to operate this extinguisher

JUST BY LOOKING AT IT!

It's a Randolph!

The *first 10 to 30 seconds* can mean the difference between *no loss* and *complete destruction* when fire starts. That's why Randolph's simple, *obvious* operation is so important in stopping fires *before* they spread!

Anybody can get a Randolph into action FAST! No valves to turn, no nozzles to adjust; just point and press your thumb! Randolph's snowy CO_2 is non-damaging, evaporates without a trace. It's non-toxic, won't conduct electricity, deteriorate or freeze. Underwriters' approved.

A Complete Line of Extinguishers and Automatic Systems

Learn how Randolph gives your plant better *preventive* fire protection! Write Randolph Laboratories, Inc., 5 East Kinzie St., Chicago 11, Illinois.

Randolph

SIMPLIFIED FIRE EQUIPMENT

Report on a Tornado in Great Britain

THE Buckinghamshire County Council Fire Brigade has released an attractive 24-page publication which describes the emergency operations of the fire brigade following a tornado in that section.

This report should be of interest to fire department members in this country, especially those who live in the Middle West and are acquainted with this type of disaster.

The storm was without precedent in England and the resultant disaster required many improvised emergency measures before order was restored.

The "freak" storm covered a twelve-mile path in thirty minutes. Trees, autos, rooftops, and animals were lifted from their respective places and tossed about by the wind before being dropped to the earth again, and humorous and tragic instances were many and varied. At first it was thought that the storm was not severe, but as reports began to come in to the fire brigade it became obvious that many people were in distress.

This publication describes in detail the rescue operations peculiar to this type of disaster, and is well illustrated throughout. One of the lessons that was learned by the fire brigade was that the use of radio-telephone equipment was essential to this type of emergency rescue operations.

Since many of the roofs in the affected areas were not designed for resistance to the type of winds that exist in a tornado, the storm tore them away, leaving the houses with no overhead protection. Hundreds of tarpaulins were used as temporary coverings until the repair work could be started.

One of the tragic aftermaths was the fact that there was no insurance coverage for the property damage that resulted from this type of storm, since it was foreign to the area. Rescue operations included the feeding and sheltering of many families who lost everything in the disaster.

FOR SALE

Three Fire Trucks in Good Condition

One '42 Seagrave with 143 ft. of wooden ladders, fully equipped, 750-1000 gpm pump.

One '42 Peter-Pirsch, fully equipped, has two 14 ft. wooden ladders and a 750-1000 gpm pump.

One '42 Navy Surplus Seagrave, good condition, fully equipped, has a 750-1000 gpm pump.

Price $1950 to $2500

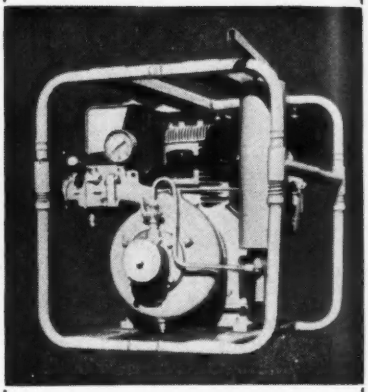
Fulton Auto Exchange
190 Edgewood Avenue
Atlanta, Georgia. Phone MAin 2134

HAS YOUR FIRE TRUCK A HALE TYPE FZZ?

• EASY STARTING

• DEPENDABLE

• PORTABLE



Above—This frame-mounted FZZ (with carrying handles turned in) can be easily carried to source of water which truck cannot reach, for refilling booster tank or for fighting fire direct.

Unit is also available mounted on two wheels or on rubber-cushioned steel channels.

Chief R. M. Wilson of Monroe City, Missouri, suggests that all Fire Trucks should have a Hale type FZZ portable pumping unit . . . He writes: "I want to tell you how pleased I am with this FZZ pump. We received it May 27th. On May 29th I was compelled to use it during a bad rain storm as our large pumper was unable to reach water supply. We put the little pump at a pond, used 500 ft. 1½" hose layout, and saved this farmer almost $2,000.00. The FZZ gave a nice fire stream. The motor started on the first pull in a downpour of rain. Not one time did it stop. We used it for almost 2 hrs. Had not we had this portable pump, there was no way we could put out this fire. I think all fire trucks for Town or Country should have one or more."

Above—FZZ Pumping solid stream and fog.

With a ready-for-use Hale FZZ you can fight fires not only with solid stream and/or fog, but also with foam — a valuable weapon against gasoline truck fires.

The easily portable FZZ can be mounted in any apparatus, making it possible to fight fires while apparatus is in motion, using booster tank for source of water. CAPACITY 60 G.P.M. at 90 lbs. pressure; 150 G.P.M. at 30 lbs. pressure; ample reserve capacity. ***Ask for demonstration; no obligation.***

Write today for FZZ FOLDER to:

HALE FIRE PUMP COMPANY
CONSHOHOCKEN, PA.

Fire Pumps in All Standard Capacities

Contributions to Volunteer Fire Departments Now Tax Exempt

REPRESENTATIVE J. C. BOGGS of Delaware, a champion of the volunteer fire service in the United States Congress, has received word from the Commissioner of Internal Revenue that the United States Bureau of Internal Revenue of the Treasury Department will hereafter recognize as tax deductible contributions to legitimate volunteer fire companies. This follows a decision of the United States Tax Court on June 9th confirming previous court decisions that such contributions are deductible for income tax purposes. Congressman Boggs had sponsored specific legislation (House Bill 1822) to make contributions to volunteer fire companies deductible for tax purposes, but the action of the United States Tax Court and the Bureau of Internal Revenue will make passage of such specific legislation unnecessary at this time.

New "Fire Photo" Contest Sponsored by NFPA

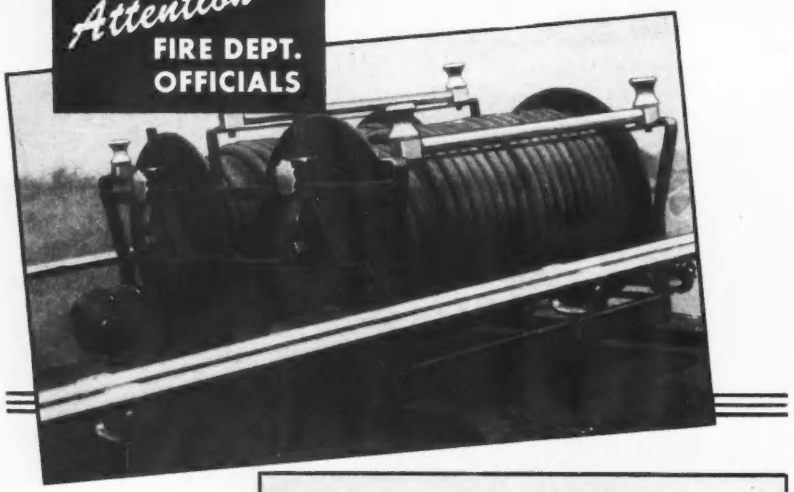
THE National Fire Protection Association and the National Press Photographers Association have sponsored a contest to pick "The Fire Photo of the Year" taken by professional press photographers. A top prize of $250 will be awarded by the NFPA, plus $125 more in prize money for "runners up." Handsomely embossed certificates will be given to both the winning photographers and their employers.

Fire departments should find this contest a good opportunity to allow their local press photographer to gain some national recognition, and in the meantime give him a pat on the back for services heretofore rendered.

The contest will be open to photographers in the United States and Canada for fire photographs taken in the current calendar year ending December 31. The contest will close January 31, 1951. Four of the nation's leading press photographers will serve as judges, plus a representative from the NFPA.

Full contest information appears in the August issue of the National Press Photographer. Contest queries should be addressed to: Melvin R. Freeman, Manager, Public Relations, National Fire Protection Association, 60 Batterymarch Street, Boston 10, Massachusetts.

Winners will be announced at the 54th annual meeting of the National Fire Protection Association in Detroit, May 7–11, 1951.



Mack Pumper
equipped with the New Hannay Hose Reels.

It's the New

HANNAY HOSE REEL

WATER-RESISTANT
VAPOR-RESISTANT
EXPLOSION-PROOF

New models for fire trucks and airport crash trucks are especially designed with extra strong construction to withstand high pressures and the motor is protected against fog, foam, water and fumes. Developed to overcome the danger factors previously associated with electrical rewinds, the Hannay Reel has been PROVEN SAFE and efficient in exacting factory and field service tests. Explosion-proof, heavy duty motor with permanently lubricated bearings is Underwriters Approved Class 1, Group D, and is an integral part of the reel; needs no attention.

- ★ **Can be connected through conduit, for sealed, safe installation.**
- ★ **Sealed push button control; "push" to start; "release" to stop.**
- ★ **Quiet, positive sprocket and chain drive; no gears to shift; no clutch to engage.**
- ★ **Safe rewind speed, always under control.**
- ★ **Smartly designed, compact, durable, dependable.**
- ★ **Simplicity of construction and operation reduces maintenance costs to a minimum.**

ASK YOUR SUPPLIER
or write direct for
full information.

HANNAY
REG. U. S. PAT. OFF.
HOSE REELS
CLIFFORD B. HANNAY & SON, INC.
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Readers' Comments

Numbering Nozzle Tip Sizes

"Congratulations on the fine work you are doing with your articles 'Making a Good Job of It' especially in regard to fire hydraulics. You have passed these out in small doses and in plain simple language. Also let me add a plug for a good magazine FIREMAN, it contains plenty of good information for any fireman, volunteer or professional.

"Now can I comment (no offense) on your article in the June issue entitled 'Estimating GPM of Hose Streams'? I am in reference to the use of fractions in relation to the 1-in. tip." (Formula for converting GPM of 1-in. tip to other sizes. — Ed.) "My method which I borrowed years ago from a chief on the West Coast is to use a number for each tip, such as 17 for a ¾-in. tip, 23 for a ⅞-in. tip, 30 for 1-in. tip, 38 for 1⅛-in. tip, and 47 for the 1¼-in. tip. To me this method is a little simpler and you can get away with a little less arithmetic. What say? On our engines we have stamped all solid tips with the above numbers as well as the size of the tip."

HAROLD A. SMITH, *Ex-chief*,
Greenwood, R. I.

As Chief Smith points out the use of simple fractions to convert GPM for a 1-in. tip to other tip sizes can be omitted if a factor is memorized for each nozzle size. This factor multiplied by the square root of nozzle pressure will give the approximate GPM for that nozzle. As pointed out in the June FIREMEN the square roots of common fireground pressures are easily remembered, viz: 40 pounds = 6+, 50 pounds = 7, 60 pounds = 8—, 70 pounds = 8+, 80 pounds = 9, 100 pounds = 10.

Example: Find GPM of ¾-in. tip at 80 pounds. Multiply 17 x 9 (square root of pressure) = 153.

The answer obtained is actually a few gallons high and should be smoothed to 150 GPM for all practical purposes.

Or: Find GPM of 1¼-in. tip at 70 pounds. Multiply 47 x 8+ = 376+10 = 386.

This happens to be the actual GPM for this tip although at lower pressures the factor of 46 would give a closer reading. In each case a plus or minus sign following a square root indicates that approximately 10 gallons should be added or subtracted from the answer as the case may be. This eliminates the need for exact square root figures such as 8.3666 for 70 pounds pressure. Such exactness is of no practical value on the fire ground. — Ed.

Determining Friction Loss and Nozzle Pressures

... "I have developed a method of finding friction loss per 100 feet of 2½-in. hose, and nozzle pressure when pump pressure and feet of hose are known, using the fractional method of finding friction loss described in the April FIREMEN.

"The fractions for tip sizes are:
1-in. tip = ¼ nozzle pressure per 100 feet of 2½-in. hose.
1⅛-in. tip = ⅓ nozzle pressure per 100 feet of 2½-in. hose.
Therefore:
NP (nozzle pressure) on a 1-in. tip = FL (friction loss) in four 100-ft. sections of 2½-in. hose.
NP on 1⅛-in. tip = FL in three 100-ft. sections of 2½-in. hose.

"Find the number of 100-ft. sections in the line. Add 4 for a 1-in. tip or 3 for a 1⅛-in tip. Divide the pump pressure by the result. This gives the friction loss per 100 ft. Multiply the result by 4 for a 1-in. tip or by 3 for a 1⅛-in. tip to find the nozzle pressure.
Example:
Engine pumping at 160 pounds through 500 ft. of 2½-in. hose with 1⅛-in. tip.
Number of 100-ft. sections = 5.
Number of 100-ft. sections in which friction loss equals nozzle pressure on a 1⅛-in. tip = 3.
Engine pressure = 160 pounds.
160 : (5+3) = 20 (20 pounds friction loss per 100 ft.)
NP = 20 x 3 = 60
FL = 20 x 5 = 100
FL + NP = EP (engine pressure)
100 + 60 = 160

"At first glance this seems a bit complicated, but with a little practice results may be obtained very quickly in your head. I feel the method could be very useful on the fire ground as the pump operator could figure the nozzle pressure to keep it from being excessive. Also by figuring the nozzle pressure he could find the gallons per minute he is pumping and would not attempt to run the pump above capacity.

"I find the NFPA very helpful and educational to me as a volunteer fireman and am looking forward to many years of pleasant association with the National Fire Protection Association."

GEORGE T. HAINES, JR.,
Pleasantville, N. J.

Note — the articles on friction loss and GPM here referred to have been reprinted and are available from NFPA (No. F-17-4) 25c per copy.

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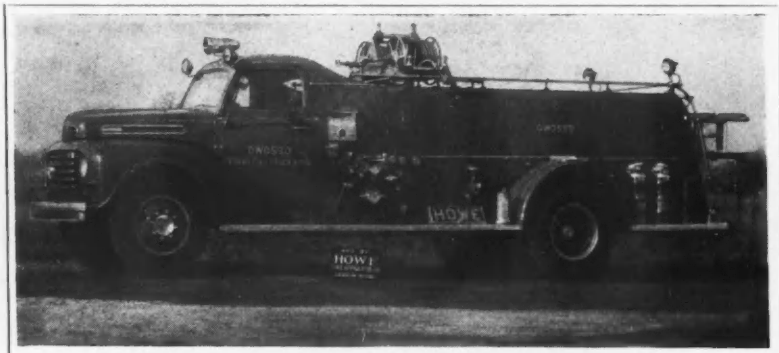

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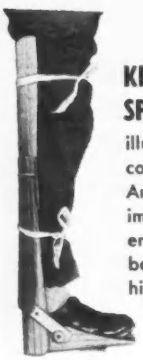

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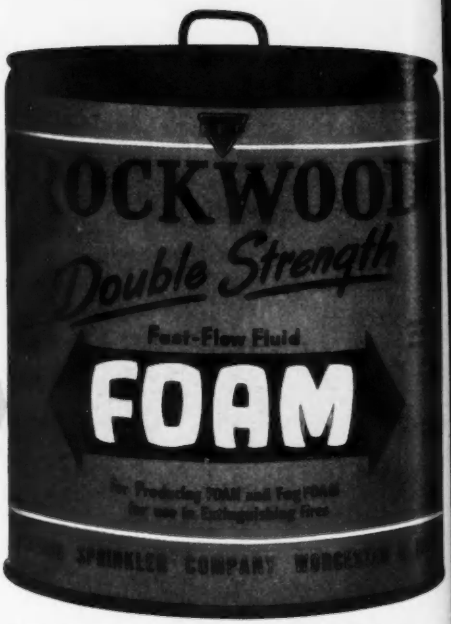

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